Clearly, DBS service providers should not be permitted to create sham entities that would allow them to evade Congress's intent to reserve DBS capacity for the categories of bona fide noncommercial programming sources designated in the statute. Thus, the Commission should deny eligibility for reserved capacity where there is an ownership or similar relationship between a noncommercial program supplier and the DBS provider or licensee that would give the provider or licensee control of the educational user.

At the same time, the Commission should not prohibit legitimate arrangements under which DBS providers or licensees, or any other for-profit entities, enter into joint ventures with bona fide noncommercial program suppliers. Such joint ventures could provide a non-profit program supplier of limited resources with a source of funding to produce additional programming or clear additional program rights for the reserved DBS capacity.[25] Such ventures should be permissible, so long as (1) they include as a participant an entity that is a qualified "national educational program supplier" as defined in the statute (see pages 13-17 above), and (2) the "national educational program supplier" maintains editorial control over the noncommercial educational or informational programming offered on the reserved capacity. These restrictions should ensure that any venture is

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[25] The cost of clearing the necessary program rights is a significant impediment to the further distribution of noncommercial program services on DBS. See pages 21-22 & note 29, infra.

in effect a bona fide noncommercial program supplier of the sort contemplated by Congress.[26]

V. The Commission Should Define "Reasonable Prices, Terms, and Conditions" in a Way That Facilitates Noncommercial Entities' Use of the DBS Capacity

In enacting the set-aside provision, Congress recognized that the mere opportunity to be carried on a DBS system would not ensure that qualified noncommercial entities would actually reach the public in a meaningful way. Thus, Section 25(b) requires DBS systems to provide access to the set-aside capacity "upon reasonable prices, terms, and conditions." The Commission has requested comments on how this language should be interpreted. See 1997 Notice at p. 2; 1993 Notice at ¶¶ 37-51. The statute itself provides that rates paid by a qualified noncommercial entity may not exceed 50 percent of the direct cost of making the channel available. As discussed in Section A below, some noncommercial entities will be able to obtain compensation for their programming and thus will not need to invoke this protection. For those that must pay, the Commission should define direct costs narrowly to facilitate use of the reserved capacity. Section B below proposes several guidelines for other terms and conditions that will help ensure that

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[26] The Commission also should not preclude corporate underwriting of programs or corporate contributions to national educational program suppliers. Nor should directors of satellite companies be precluded from sitting on the boards of national educational program suppliers, so long as they do not exercise editorial control over the program suppliers.

qualified noncommercial entities reach the widest segment of the DBS audience without unduly burdening DBS providers.

A. Reasonable Prices

Some qualified noncommercial entities are in a position to negotiate to be paid for DBS carriage of their programming, or at least to obtain free carriage. In 1993, it was not immediately apparent that any noncommercial entities would be in a position to obtain payment for DBS carriage, and the statute does not prescribe any guidelines for such negotiations. In the past few years, however, several DBS providers have negotiated for the right to distribute PBS programming to subscribers in "unserved households" (as defined in the Copyright Act) and have provided compensation to PBS in exchange for that right.[27]

The Commission should not adopt regulations that would inhibit such free-market negotiations. Any qualified noncommercial entity that is able to negotiate compensation from a DBS

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[27] PBS's distribution of its "National Satellite Service" programming on DBS is one of the many ventures that PBS has undertaken to maintain the financial self-sufficiency of public television and to ensure that public television programming is available to all viewers irrespective of distribution technology. In addition, public television continues its tradition of technical leadership in the support of educational and public service goals. The first to develop closed captioning, descriptive video, and stereo television services, and to transmit television programming by satellite, PBS and public television stations are now at the forefront of the development of advanced digital television.

system for distribution of its programming would simply have no need to invoke the maximum rate protection of Section 25(b).[28]

Ultimately, it may be desirable to extend the compulsory license scheme under the Copyright Act to cover DBS carriage of the programming of qualified noncommercial entities and to provide that, in the absence of voluntary agreement, compensation be paid to rights holders for such carriage. Currently, the amount of royalties due PBS producers and other rights holders in connection with DBS service to "unserved households" is determined through voluntary negotiations or through the compulsory license afforded satellite operators under the Copyright Act. See 17 U.S.C. § 119.[29] PBS proposed during the last session of Congress that the satellite compulsory license be extended to PBS's noncommercial National Program

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[28] DBS capacity devoted to any programming that a qualified noncommercial entity has supplied, whether or not the entity receives compensation, should count towards satisfaction of the Section 25(b) set-aside requirement. Such a policy benefits everyone -- it allows the public access to noncommercial programming, provides the noncommercial entity with access to resources that help to fund the programming, and helps the DBS provider to satisfy its statutory obligation.

[29] The Copyright Office of the Library of Congress administers regular proceedings by which Copyright Arbitration Royalty Panels ("CARPs") determine the amounts due producers and other rights holders for this use of programs and the proper allocation of compulsory license fees among such rights holders. See 17 U.S.C. §§ 801-803. If the compulsory license scheme were extended, in the absence of successful voluntary negotiations, the CARP process could serve as one mechanism for determining the amount the DBS operator pays for the use of set-aside programming.

Service programs. Such an extension of the compulsory license would facilitate DBS providers' compliance with Section 25(b).[30]

Some noncommercial entities -- those unable to negotiate payment for distribution of their services or "free carriage" -- will need to invoke the statutory requirement under Section 25(b)(4)(B) that the rates for reserved channels be no greater than 50 percent of the direct costs of making the channel available. Section 25(b)(4)(C) provides that direct costs must exclude the "marketing costs, general administrative costs, and similar overhead costs" of the DBS provider as well as "the revenue that [the DBS] provider might have obtained by making such channel available to a commercial provider of video programming." The legislative history makes clear that "direct costs" are limited to those transmission and uplink costs that are directly related to making the DBS capacity available to the noncommercial program supplier. See H.R. Rep. No. 102-628, 102nd Cong., 2d Sess. 124-25 (1992).[31]

Section 25(b) and its legislative history require a Commission rule that defines these direct costs narrowly and limits them to the incremental (or marginal) costs the DBS provider bears in carrying the programming of qualified

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[30] PBS's written testimony in Copyright Office Docket No. 97-1, filed today, discusses this subject at greater length.

[31] The Commission acknowledged in 1993 that the legislative history makes clear that direct costs should include only the costs of transmitting the signal to the uplink facility and the direct costs of uplinking the signal to the satellite. 1993 Notice at ¶ 50.

noncommercial entities. See 1993 APTS Comments at pp. 28-30. Hence, the Commission should adopt a rule limiting direct costs to the allocable portion of the following incremental cost items:

- encoding, compression and uplinking
- authorizing the user to access the satellite
- producing, publishing and distributing program guides
- direct taxes (if any) occasioned by the sale or lease of capacity to the noncommercial program supplier.[32]

In addition, as Section 25(b)(4)(C) requires, the Commission should expressly exclude general overhead costs from the definition of direct costs. Even in the absence of such an express statutory prohibition, the Commission in other contexts has clearly stated that direct costs do not include overhead

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[32] In 1993, the Commission sought comment on Section 25(b)(4)(A), which states that in determining appropriate rates the Commission must consider the non-profit character of the programmer to whom the capacity is provided and any federal funds used to support the programming. 1993 Notice at ¶¶ 47-48. Since the entities that fall within the definition of "national educational programming supplier" have non-profit status, it is not clear what Congress meant by the reference to non-profit character of the programmer.

Establishment of rates that take into account the use of federal funds to support programming would be quite difficult if the reference in Section 25(b)(4)(A) is to financial support of program production. A typical noncommercial program supplier will have some programs that are produced with federal funds and others that are not. In addition, the amount of federal funds used to produce programs varies from program to program. Thus, there would be significant administrative burdens attendant to mandating special lower rates for programs produced with federal funds. In many cases, such a mandate would also involve the disclosure of third-party proprietary financial information. Accordingly, rather than adopting detailed rules tailored to the level of federal funding provided for specific programs, the Commission should encourage DBS providers to charge less than 50 percent of direct costs for any programs produced with federal financial support.

costs.[33] For example, in the context of Title II tariffs, the Commission has ordered that costs must have been incurred to "specifically support" the particular service in order to qualify as direct costs related to that service.[34] The Commission should also make clear that direct costs exclude fixed costs that would be incurred regardless of whether a noncommercial program supplier is given access to capacity.[35]

B. Other Terms and Conditions Must Be Reasonable

DBS carriage will not fulfill the statute's goals unless the terms and conditions of carriage permit the public to have access to noncommercial entities' offerings conveniently and without disruption. The Commission should impose a general requirement of reasonable terms and conditions, which would be

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[33] In fact, overhead costs are often computed as a percentage of direct costs. See, e.g., In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996; Interconnection Between Local Exchange Carriers and Commercial Mobile Radio Service, 11 FCC Rcd. 15499, ¶ 696 (1996) (concluding in the interconnection context that one reasonable way "to allocate common costs [would be to use] a fixed allocator, such as a percentage markup over the directly attributable forward-looking costs").

[34] In re 888 Data Base Access Tariffs, 11 FCC Rcd 15227 (1996).

[35] For example, if the satellite licensee makes the capacity available directly to the qualified noncommercial entity, the licensee's depreciation or interest expense is a fixed cost related to the operation of the satellite, and is not a cost incurred in relation to carriage of any particular programming. Similarly, if an entity other than the licensee provides the capacity, the costs of the transponder are fixed costs that would have to be paid regardless of whether capacity was made available to a qualified noncommercial program supplier. Such fixed costs should not be included in the determination of direct costs.

enforced through an individual complaint process. The Commission should also require specifically that: (1) qualified noncommercial entities be provided with a reasonable and consistently available block of time; (2) such entities be afforded a consistent means of identification; and (3) the offerings of such entities be included in the lowest-price program tier or available at the lowest per-program-hour rate (if a separate fee is charged to DBS subscribers for this programming).

1. Qualified Noncommercial Entities Should Have Access to a Reasonable and Consistent Block of Time

In determining how reserved capacity should be made available, the Commission should focus on the objectives underlying Section 25(b). Rather than basing access requirements on such artificial and ephemeral constructs as channels, the Commission should attempt to ensure that as much of the DBS-viewing public as possible has substantial access to noncommercial programming in the format for which such programming was designed.

The DBS capacity, if made available in reasonable blocks of time at accessible hours, could provide not only a conduit for more traditional public broadcasting programming, but also a vital distribution mechanism to ensure that existing and potential instructional services reach the public. As noted in the Introduction above, there are important reasons to maximize opportunities for educational services to reach the public

through DBS. Moreover, as described in the Introduction, public television has extensive resources, including in-school instructional programming, interactive distance learning programs, and adult credit and non-credit courses, that could be made more accessible through DBS.

Congress's purpose in reserving the DBS capacity will not be achieved if noncommercial program services are relegated to fragments of time at scattered hours, to time in the dead of night, or to time on different channels at different hours. Rather, to realize the full potential of these uses, DBS set-aside time should be provided in ways that allow various types of programs to reach their intended audiences at accessible hours. As is the case with broadcast operations, educational entities using DBS capacity must be able to build a following and an audience in order to fulfill the objectives underlying Section 25(b).

At a bare minimum, the rules should state that reasonable and useful blocks of time must be provided so that meaningful program services can be delivered to schools, homes, businesses, and other users.[36] The rules should also provide specifically that, where the capacity to be made available is

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[36] Of course, qualified noncommercial entities and DBS providers should have the flexibility to enter into agreements that involve splitting capacity into smaller blocks of time than might ordinarily be considered appropriate, so long as the capacity satisfies the specifications of Section 25(b) and the agreement does not prejudice other qualified entities. For example, a qualified entity may prefer to use three video channels simultaneously over a two-hour period rather than a single video channel for 6 hours.

less than 18 hours per day, it must be made available between the hours of 6 a.m. and 12 midnight daily, commencing on the hour or half-hour, unless the parties agree to a different arrangement. This is a straightforward way to ensure public access to noncommercial programming during the principal viewing hours.

In addition, the noncommercial programming supplier should have the right to use any subcarriers, vertical blanking interval, or other technical capabilities of transmission technology deployed, including compression or similar techniques.[37] However, it would also be appropriate for the rules to clarify that the noncommercial programming supplier may not demand changes in the technical configuration of the satellite (e.g., the noncommercial programming supplier may not demand that the licensee make available a compression ratio not employed on the satellite).

2. Noncommercial Users Should Be Afforded a Consistent Means of Identification

The rules should require that noncommercial programming suppliers be provided with a consistent means of identification in a DBS system. Increasingly, DBS operators make programming choices available through a menu or other selection mechanism that does not tie a particular service or program supplier to a particular numerical channel. The DBS provider should treat the qualified noncommercial entity in the same manner as its other

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[37] Again, the rules should not preclude mutually agreeable alternative arrangements. For example, a noncommercial entity might prefer to use three hours at a 4-to-1 compression ratio rather than three hours at a 6-to-1 compression ratio.

programming suppliers in terms of mapping, displaying, and otherwise arranging the programming for ease of navigation. To the extent that transponders and subchannels remain relevant for audience selection of programming, each qualified noncommercial entity should have access to the same transponder and channel identifier on a consistent basis, so that viewers see a constant channel number or other identifier in connection with a particular noncommercial entity's programming.

The Commission should also ensure that the public can find and select the noncommercial educational programs easily, so that the purposes of Section 25(b) are served. Thus, material supplied by noncommercial entities should be placed sequentially on a menu and should be clearly identified in the menu as noncommercial educational, in a consistent manner over time.

3. Noncommercial Programming Should Be Offered to Viewers As Part of the Lowest-Price Tier of Programming

In any "pay-television" system such as DBS, it is customary for operators to charge viewers on a monthly or per-program basis for access to the programming. It is critical that any payment mechanism not impair the objectives of Section 25(b) by, for example, imposing excessive program fees for access to noncommercial programming, or requiring subscribers to purchase additional equipment to receive noncommercial programming.

Accordingly, as a part of the satellite licensee's obligation to make capacity available to qualified noncommercial programming suppliers, the Commission should require the licensee

to ensure that: (a) regular noncommercial programming is available to subscribers as part of the lowest-price "tier" of programming offered by the DBS operator,[38] (b) special-event noncommercial programming is available to subscribers at the lowest per-program-hour rate charged by the DBS operator for any pay-per-view programming, and (c) the subscriber is not required to purchase equipment other than the lowest-price basic receiver equipment needed to obtain the noncommercial programming. Consistent with the purpose of Section 25(b), these requirements will ensure that DBS subscribers have reasonable access to noncommercial programming.

VI. The Satellite Licensee Should Be Ultimately Responsible for Assuring Compliance with Section 25

The Commission in 1993 solicited comment on which entity should be held ultimately responsible for fulfilling the obligations of Section 25. 1993 Notice at ¶¶ 9-16. Section 25(b)(1) provides that the obligations of Section 25(b) apply to "a provider of direct broadcast satellite service." As the Commission recognized, the Act is not entirely clear on what entity is a "provider" in the case of DBS services subject to license under Part 25 of the Commission's rules.

In the case of both Part 100 and Part 25 satellites, the Commission should hold the licensee ultimately responsible

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[38] Compare 47 U.S.C. § 615(h) (requiring carriage of local public television signals on cable system's lowest priced service tier that includes local commercial television broadcast signals).

for assuring that DBS capacity is made available to noncommercial programming suppliers.[39]

A. Part 100 DBS Satellites

With respect to DBS services provided under Part 100 of the Commission's rules, the Commission tentatively concluded in 1993 that the satellite licensees under Part 100 are the entities that must bear the ultimate responsibility to assure that capacity is made available to noncommercial programming suppliers. See 1993 Notice at ¶ 8. That conclusion is consistent with the explicit language of Section 25(b)(5)(A), which defines a DBS provider as "a licensee for a Ku-band satellite system under part 100 of title 47 of the Code of Federal Regulations."

B. Part 25 Satellites Used for DBS

The Act is not as explicit in identifying the entity responsible for ensuring compliance with Section 25 where a satellite is used for DBS pursuant to Part 25 of the Commission's rules.[40] However, the best interpretation of Section 25, when

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[39] This assumes that the licensee is not a shell, but an operating entity that effectively controls the satellite. Given the variety of business arrangements that are developing in the DBS industry, however, it is conceivable that the licensee and the entity controlling the use of the satellite could be distinct legal entities. In those circumstances, the Commission should look beyond the party with de jure control to determine which party is exercising de facto control over the satellite. See Mutual Radio of Chicago, Inc., 98 F.C.C.2d 330, 55 RR 2d 1577 (1984); George E. Cameron, Jr., Communications (KROO), 91 F.C.C.2d 870, 52 RR 2d 455 (1972).

[40] Specifically, Section 25(b)(5)(A)(ii) defines a "provider of direct broadcast satellite service" as a

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read as a whole, is that the Part 25 satellite licensee should bear the ultimate responsibility for ensuring that capacity is made available to noncommercial programming suppliers. This reading is consistent with the statutory language. Moreover, it comports most closely with the manner in which the Commission has historically exercised its regulatory powers and is the easiest to implement.

Of particular significance, the obligation under Section 25(b)(1) to make capacity available for noncommercial programming is to be imposed as a condition of "an authorization." Since the Commission authorizes only licensees -- not lessors of satellite capacity or programming suppliers -- Section 25(b)(1) contemplates that the licensee will be the entity responsible for ensuring compliance. In addition, Section 25(b)(5)(A)(ii), in defining a provider of DBS services, refers to a distributor controlling a minimum number of channels and "licensed under Part 25" of the Commission's rules. Again, the

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[40](...continued)
"distributor who controls a minimum number of channels . . . using a Ku-band fixed service satellite system for the provision of video programming directly to the home and licensed under part 25" of the Commission's rules. The Commission observed in 1993 that this definition could apply to a number of different entities, including the satellite licensee, the video programmer, other program suppliers and distributors, or other third parties, such as entities that lease capacity on a wholesale basis and resell it to individual programmers. 1993 Notice at ¶¶ 9-11, 16-17.

language indicates that it is the licensee that is subject to the requirements of Section 25(b).[41]

This reading of Section 25(b)(5)(A)(ii) is the most reasonable because it harmonizes the different parts of the statute. Moreover, it makes clear where the Section 25(b) responsibility lies, thereby more effectively implementing Congress's intent to ensure that capacity is made available for noncommercial programming sources.[42]

Further, this interpretation comports with the Commission's general approach to regulation. The Commission

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[41] As the Commission noted in 1993, use of the words "distributor who controls . . . channels" in Section 25(b)(A)(ii) could suggest that Congress intended to impose the requirements of Section 25(b) on entities other than the licensee. 1993 Notice at ¶ 10. However, in view of the other language of the statute (discussed above), it would be more sensible to read the words to refer to the events that trigger the Section 25(b) obligation of a Part 25 satellite licensee. Under this interpretation, the lease, sale or use of capacity on a Part 25 satellite by a DBS "distributor who controls a minimum number of channels" would trigger the licensee's obligation under Section 25(b).

The Commission also suggested that the words "licensed under Part 25" refer to the satellite rather than the "distributor." 1993 Notice at ¶ 17. For the reasons described in the text, it appears more reasonable to conclude that Congress meant that the entity covered by Section 25(b) is the Part 25 licensee.

[42] In 1993, some parties cited a statement in the House report, H.R. Rep. No. 102-628, 102nd Cong., 2d Sess. 124 (1992), that the licensed operator of the DBS satellite would not itself be subject to the reservation requirement. This statement is irrelevant because it refers to an earlier version of the DBS set-aside provision. Even under the House bill, it was clear that the obligation to provide capacity for noncommercial programming suppliers was a condition of the satellite license, although the actual requirement to make the capacity available was imposed on the entity that "provide[s]" the DBS programming. See H.R. 4850, § 18(a)(4).

ordinarily exercises its regulatory powers by imposing constraints on its licensees and on others who require a Commission authorization.[43]

This interpretation also makes Section 25(b) easier to administer than a reading that entails regulation of program distributors, transponder lessees, and other third parties. First, the Commission would be in a position to apply the same regulatory regime to both Part 100 and Part 25 DBS satellites. Second, the Commission has detailed information as to the licensee of every satellite, its ownership and governance. In its efforts to ensure that statutory obligations are fulfilled, the Commission can easily keep track of DBS licensees, unlike DBS program distributors or transponder lessees.

Third, the Commission has a range of established regulatory mechanisms it can invoke to ensure that DBS licensees comply with Section 25(b).[44] In contrast, the Commission's enforcement powers with respect to non-licensees are limited to forfeitures and cease and desist orders, 47 U.S.C. § 312(b) and § 503(b)(2)(C). Neither of these remedies is as effective as the Commission's powers over licensees. Finally, the scope of the Commission's power to regulate entities that are not dependent on the Commission for their operating authority is not as well

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[43] For example, the payola provisions of the Communications Act impose the disclosure requirements on the licensee, even where the payment is made to third parties. 47 U.S.C. §§ 317 & 508.

[44] See, e.g., 47 U.S.C. §§ 312(a) & (b), 316, 503(b).

settled as its authority over licensees. Efforts to assert jurisdiction over programming suppliers and transponder lessees thus could involve the Commission in litigation over its regulatory authority.

C. The Licensee Should Have Some Discretion Regarding How to Assure Compliance with Section 25(b), But Should Be Required to File Quarterly Reports with the FCC

While the satellite licensee should be required to assure that capacity is made available to noncommercial programming suppliers in compliance with Section 25(b), it should have some discretion with respect to the manner in which it fulfills that obligation.[45] For example, the licensee could make the channel capacity directly available itself, or it could impose appropriate conditions on those leasing capacity for DBS service. Giving the licensee that discretion will allow it to decide how best to accommodate the Section 25(b) obligation within its overall operational and business plans. The key is that the Commission is able ultimately to invoke adequate enforcement mechanisms and to hold the licensee accountable for any failure to comply.

In order that the Commission and interested noncommercial entities may determine how DBS satellites are being used and what capacity is available for use by noncommercial programming suppliers, the Commission should require the licensees of both Part 100 and Part 25 satellites to file reports

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[45] Of course, the licensee would be subject to the "reasonableness" requirements discussed above.

concerning DBS use on a quarterly basis. At a minimum, these reports should contain information concerning (a) the number of transponders devoted to DBS use; (b) the number of Megabits per second transmitted by each transponder; (c) the number of Megabits per second contained in a standard channel for each transponder;[46] and (d) a description of how the licensee is fulfilling the requirements of Section 25(b), as implemented by the Commission's rules.

With respect to the last item, the licensee should identify the entity or entities to whom noncommercial capacity is being provided, the amount of capacity being provided to each noncommercial entity, the conditions under which it is being provided, and the rates, if any, being paid by the noncommercial entity. The licensee should also provide information as to the entities that have requested capacity pursuant to Section 25(b) during the quarter and the disposition of those requests.

This reporting requirement would permit the Commission to monitor compliance with the requirements of Section 25(b). It would also provide entities eligible for Section 25(b) capacity with a central source of information regarding what capacity is available. Because the information requested is not complex or detailed, the reporting requirement should not impose undue burdens on the licensee. Moreover, if there has been no change

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[46] See page 40, infra, for an explanation of the term "standard channel."

from quarter to quarter, the licensee could simply make a statement to that effect in its filing.

VII. The Commission Should Impose a 7 Percent Set-Aside Requirement on All DBS Licensees

The Commission in 1993 solicited comments on how it should implement the requirement that not less than 4 percent nor more than 7 percent of DBS channel capacity be reserved for noncommercial use. Among other things, the Commission sought comments on how it should define a channel, particularly in light of digital compression technology, 1993 Notice at ¶¶ 12-13, the appropriate number of channels that would trigger the obligation for Part 25 satellites, id. at ¶ 12, and whether it should employ a sliding scale to determine the number of channels to be made available for noncommercial use, id. at ¶ 40.

A. Developments in the DBS Industry Support Imposition of a Fixed 7 Percent Set-Aside Requirement

In its comments in response to the Commission's 1993 Notice, APTS proposed rules that would have established a sliding scale for the DBS set-aside requirement. Under the 1993 APTS proposal, licensees with up to 5 transponders would have been required to set aside 4 percent of the capacity of the transponders for use by noncommercial programming entities, while licensees with 8 or more transponders would have been required to set aside 7 percent of the capacity of the transponders. This sliding scale approach appeared consistent with the legislative history, which indicated that Congress intended the Commission to consider the total channel capacity of DBS systems in

establishing the set-aside requirements. See, e.g., H.R. Rep. 102-862, 102nd Cong., 2d Sess. 100 (1992) ("the Commission may determine to subject DBS systems with relatively large total channel capacity to a greater reservation requirement than systems with relatively less total capacity").

In view of the recent substantial growth in capacity of all DBS systems, it is no longer necessary or appropriate to adopt a sliding scale approach. In 1992, when Congress enacted the DBS provision, and in 1993, when the Commission initially sought comments on implementation of the provision, it appeared that there would be 10 or more DBS systems of varying sizes.[47] Moreover, then-existing technology limited the available compression ratio to 4:1, in turn restricting the number of channels a DBS system could offer.[48] Since 1993, however, it has become clear that the DBS industry is likely to consist of a small number of systems of substantial size and capacity. Moreover, due to advances in compression technology, DBS systems should be in a position to use compression ratios at least as

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[47] See 1993 Notice at ¶¶ 3-4; S. Rep. No. 102-92, 102nd Cong., 1st Sess. 16 (1991) (referring to plans of two potential DBS entrants, one of which had the potential to offer 108 channels nationwide and the other of which planned to offer 10 channels initially).

[48] See 1993 Notice at ¶ 38 & n.41; H.R. Rep. No. 102-628, supra, at 46; S. Rep. No. 102-92, supra, at 16 (referring to 4:1 compression technology as among "new technologies" that will be used in the next generation of satellites).

high as 10:1.[49] All DBS systems will offer more than 100 channels, and some will offer as many as 500 channels. See pages 3-4 & note 4, supra.

With these developments, all DBS operators are at least at the high end of the total channel capacity range that Congress could have contemplated when it established the set-aside range of four to seven percent. Moreover, any new entrant will surely be obliged to offer the same high number of channels in order to compete effectively with existing DBS systems and will have access to the technology that makes this feasible.

In these circumstances, there is no need to establish a sliding scale for the noncommercial set-aside. Rather, in view of the greatly expanded channel capacity now available to all DBS operators, the Commission should impose a fixed 7 percent set-aside requirement on DBS licensees. Because all DBS systems have (or will have) "relatively large total channel capacity" (H.R. Rep. No. 102-862, supra, at 100), a fixed 7 percent requirement is most consistent with Congress's intent and would not be unduly burdensome. This fixed set-aside also offers the advantage of administrative simplicity compared with a sliding scale approach.

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[49] See Third Annual Report, supra, at ¶ 176. See also "DBS Compression: How High Can Sky Go?," Broadcasting & Cable (Mar. 17, 1997), at p. 42 (quoting Charles Ergen) (noting that "two years ago" EchoStar was "at 4 to 1," but that it will "be well beyond 6 to 1 at the end of the year").

B. The Commission Should Promulgate Guidelines for Calculating the Amount of Set-Aside Capacity Available for Noncommercial Programming Entities

In order to ensure effective implementation of the set-aside requirement, the Commission should promulgate guidelines for determining total capacity of a satellite and the amount of capacity that must be reserved for noncommercial entities. As suggested by the comments filed in 1993, there can be different approaches to the calculation of capacity. Moreover, capacity depends on a number of variables, and it is difficult to achieve complete precision in measuring it. In order to avoid disputes about the volume of capacity that must be set aside to meet the requirements of Section 25(b), the Commission should establish a methodology for computation of reserved capacity and provide examples of how that methodology would apply to particular situations.

In its 1993 comments, APTS pointed out the need for a methodology that is sufficiently flexible to adapt to changes in technology, such as increases in available compression ratios. APTS proposed then that, for purposes of calculating the set-aside, total capacity of a satellite be computed based on the number of transponders used for DBS and the assumption that the transponders are used 24 hours per day.[50]

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[50] Transponders used for DBS are not limited to those delivering entertainment or video programming. DBS providers can offer a variety of other program services, including technical training programs, home shopping services, and so on. DBS providers can also offer radio program services, computer programs, and various forms of information. For purposes of calcu-

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The basic framework proposed by APTS in 1993 continues to be an appropriate means of computing capacity for purposes of the DBS set-aside. However, rather than referring to compression ratios (as did the 1993 proposal), the rule proposed in these comments refers to Megabits per second and "standard channels" (as defined below in the proposed regulatory language) in order to achieve greater precision. Total capacity and set-aside capacity are expressed in terms of "equivalent hours per day" using a standard channel.

The following regulatory language should be adopted for Part 100 licensees:

> (a) Licensees of Direct Broadcast Satellites authorized under this Part shall assure, as a condition of their licenses, that at least 7 percent of the satellite and uplink capacity is made available for the distribution of programming by national educational programming suppliers. Satellite capacity shall be calculated based on the total capacity of all transponders used for DBS, based on use 24 hours a day. Satellite capacity shall be expressed in terms of "equivalent hours per day," which refers to the number of standard channels of programming that can be made available on all transponders used for DBS times 24. "Standard channel" refers to the number of Megabits per second ("Mbps") needed to transmit an average quality video signal using a particular transponder, as determined by the licensee.

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[50](...continued)
lating the set-aside, all transponder capacity used for DBS should be counted, regardless of whether it is used for video programming, audio programming, or data services, and regardless of whether it is used for distribution to the home, to businesses, or to other locations.

Example 1: If a satellite has 5 transponders used for DBS, each transmitting 30 Mbps, with a standard channel of 5 Mbps, the satellite has 50 equivalent hours per day available for noncommercial use using a standard channel. (30 Mbps ÷ 5 Mbps = 6 standard channels x 5 transponders x 24 hours = 720 hours x 7% = 50 hours per day of transmission on a standard channel)

Example 2: If a satellite has 6 transponders used for DBS, with 3 transponders capable of transmitting 23 Mbps each and 3 transponders capable of transmitting 30 Mbps each, with a standard channel of 5 Mbps, the satellite has 53 equivalent hours per day available for noncommercial use. (23 Mbps ÷ 5 Mbps = 4.6 standard channels x 3 transponders x 24 hours = 331 hours; 30 Mbps ÷ 5 Mbps = 6 standard channels x 3 transponders x 24 hours = 432 hours; (331 + 432) x 7% = 53 hours per day of transmission on a standard channel)

(b) The amount of time that must be made available may be rounded down to the nearest half hour.

(c) Noncommercial programming suppliers shall have the option to use the reserved capacity at other than the standard channel rate where such use does not unreasonably impair the operations of the DBS service. For example, where the noncommercial programming supplier is entitled to use 50 equivalent hours per day based on a standard channel of 5 Mbps, the supplier could elect to use 25 hours at 10 Mbps, or to use the same capacity with some mixture of higher and lower quality channels.

The same regulatory language should be used for Part 25 licensees, except that the Part 25 language should also refer to the amount of capacity used for DBS that will trigger application of Section 25(b) (see Part VII.C., infra). The initial language of subsection (a) of the Part 25 regulation should read as follows:

> (a) If a satellite, or any portion thereof, licensed under this Part is used for the distribution of video programming directly to the home, the licensee of such satellite shall ensure, as a condition of its license, that at least 7 percent of the satellite and uplink capacity is made available for the distribution of programming by national educational programming suppliers. However, no capacity need be made available pursuant to this section if less than 120 equivalent hours per day (as defined below) is used for the distribution of video programming directly to the home. Satellite capacity shall be calculated **[continue with language proposed for Part 100 above]**

In addition, if DBS providers offer regional or local service, as well as national service, the capacity reserved for noncommercial use should be spread proportionately among all categories of service. For example, if a provider offers a block of nationwide programming, a block of programming directed to East Coast subscribers, and a block of programming directed to West Coast subscribers, 7 percent of the capacity used for each of these services should be reserved for noncommercial programming suppliers.

C. The Trigger Level for Part 25 Satellites Should Be 120 Equivalent Hours Per Day

In the case of Part 25 satellites used for DBS, Section 25(b) requirements apply only if a minimum number of channels are used for provision of video programming directly to the home. See Act § 25(b)(5)(A)(ii). Determination of this minimum must take into account digital compression used for satellites licensed under Part 25. The Commission therefore should define the minimum video channel capacity devoted to DBS